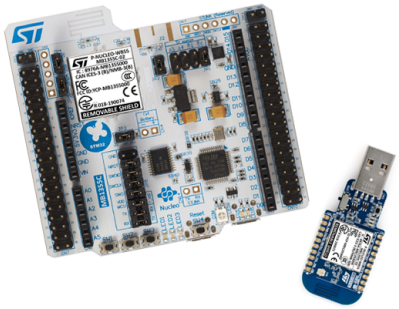
P-NUCLEO-WB55

Data brief

STM32WB Nucleo pack for wireless solutions



P-NUCLEO-WB55 STM32WB Nucleo pack. Picture is not contractual.

Product status link
P-NUCLEO-WB55

Features

NUCLEO-WB55RG board

- STM32WB55RG microcontroller in a VFQFPN68 package
- 2.4 GHz RF transceiver supporting Bluetooth® specification v5.4 and IEEE 802.15.4-2011 PHY and MAC, supporting Thread® 1.3, Matter, and Zigbee® 3.0
- Dual-core 32-bit (Arm® Cortex®-M4 and dedicated M0+ CPU for real-time radio layer)
- Three user LEDs
- Three user push-buttons and one reset push-button
- Board connectors:
  - Micro-B USB user
  - ARDUINO® Uno V3 expansion connector
  - ST morpho expansion connector
- Integrated PCB antenna or SMA connector footprint
- Flexible power-supply options: ST-LINK USB V_{BUS} or external sources
- On-board footprint to mount a CR2032 battery socket
- On-board ST-LINK/V2-1 debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
- Comprehensive free software libraries and examples available with the STM32Cube MCU Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

WB55CG USB dongle

- STM32WB55CG microcontroller in UFQFPN48 package
- 2.4 GHz RF transceiver supporting Bluetooth® specification v5.4 and IEEE 802.15.4-2011 PHY and MAC, supporting Thread® 1.3, Matter, and Zigbee® 3.0
- Dual-core 32-bit (Arm® Cortex®-M4 and dedicated M0+ CPU for real-time radio layer)
- Switch for boot management
- User push-button
- Three user LEDs
- Integrated PCB antenna or U.FL connector

Description

The P-NUCLEO-WB55 pack is a multiprotocol wireless and ultra-low-power device embedding a powerful and ultra-low-power radio compliant with the Bluetooth® Low Energy SIG specification v5.4 and with IEEE 802.15.4-2011 supporting Thread® 1.3, Matter, and Zigbee® 3.0.

1 Ordering information

To order the STM32WB Nucleo pack, refer to Table 1. For a detailed description of each board, refer to its user manual on the product web page. Additional information is available from the datasheet and reference manual of the target STM32.

Table 1. List of available products

Order code	Board reference	User manual	Target STM32
P-NUCLEO-WB55	• MB1355(1) • MB1293(2)	UM2435	• STM32WB55RGV6 • STM32WB55CGU6

1. *Nucleo board*
2. *WB55CG USB dongle*

1.1 Product marking

The stickers located on the top or bottom side of all PCBs provide product information:

- First sticker: product order code and product identification, generally placed on the main board featuring the target device.
  Example:

  Product order code
  Product identification

- Second sticker: board reference with revision and serial number, available on each PCB.
  Example:

  MBxxxx-Variant-yzz
  syywwxxxxx

On the first sticker, the first line provides the product order code, and the second line the product identification.

On the second sticker, the first line has the following format: *"MBxxxx-Variant-yzz"*, where *"MBxxxx"* is the board reference, *"Variant"* (optional) identifies the mounting variant when several exist, *"y"* is the PCB revision, and *"zz"* is the assembly revision, for example B01. The second line shows the board serial number used for traceability.

Parts marked as *"ES"* or *"E"* are not yet qualified and therefore not approved for use in production. ST is not responsible for any consequences resulting from such use. In no event will ST be liable for the customer using any of these engineering samples in production. ST's Quality department must be contacted prior to any decision to use these engineering samples to run a qualification activity.

"ES" or *"E"* marking examples of location:

- On the targeted STM32 that is soldered on the board (for an illustration of STM32 marking, refer to the STM32 datasheet *Package information* paragraph at the *www.st.com* website).
- Next to the evaluation tool ordering part number that is stuck, or silk-screen printed on the board.

Some boards feature a specific STM32 device version, which allows the operation of any bundled commercial stack/library available. This STM32 device shows a *"U"* marking option at the end of the standard part number and is not available for sales.

To use the same commercial stack in their applications, the developers might need to purchase a part number specific to this stack/library. The price of those part numbers includes the stack/library royalties.

1.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

P-NUCLEO-XXYY	Description	Example: P-NUCLEO-WB55
P-NUCLEO	Nucleo pack	Nucleo pack
XX	MCU series in STM32 32-bit Arm Cortex MCUs	STM32WB series
YY	MCU product line in the series	STM32WBx5 product line

2 Development environment

STM32 32-bit microcontrollers are based on the Arm® Cortex®-M processor.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

2.1 System requirements

- Multi-OS support: Windows® 10, Windows® 11, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to Micro-B cable

Note: macOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.
Linux® is a registered trademark of Linus Torvalds.
Windows is a trademark of the Microsoft group of companies.

2.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®(1)
- Keil® - MDK-ARM(1)
- STMicroelectronics - STM32CubeIDE

1. *On Windows® only.*

2.3 Demonstration software

The demonstration software, included in the STM32Cube MCU Package corresponding to the on-board microcontroller, is preloaded in the STM32 flash memory for easy demonstration of the device peripherals in standalone mode. The latest versions of the demonstration source code and associated documentation can be downloaded from *www.st.com*.

Revision history

Table 3. **Document revision history**

Date	Revision	Changes
26-Jun-2018	1	Initial release.
27-Jun-2019	2	Updated *Nucleo68* and *Demonstration software*. Updated image on cover page.
02-Apr-2024	3	Reshuffled the complete document to align with the latest standards. Updated battery socket information (footprint only). Removed the references to Arm® Mbed™.